

Listing of Claims:

This listing of claims reflects all claim amendments and replaces all prior versions, and listings, of claims in the application. Material to be inserted is in underlined, and material to be deleted is in ~~strikeout~~. The amendments show changes to the claims relative to the listing of claims in the Response to Final Office Action filed January 10, 2007.

1-33. (Canceled)

34. (Currently amended) A method for conducting a multiplexed experiment, comprising:

providing a first class of ~~particles~~ carrier in a first vessel, each carrier ~~particle~~ in the first class having a first optically detectable code, and a second class of carrier ~~particles~~ in a second vessel, each carrier ~~particle~~ in the second class having a second optically detectable code wherein the code exists throughout the structure of the carrier,

attaching a first type of analyte to carriers ~~particles~~ in the first vessel, and attaching a second type of analyte to carriers ~~particles~~ in the second vessel,

forming a mixture of carriers ~~particles~~ from the first and second vessels, the mixture having substantially equal numbers of carriers ~~particles~~ from each vessel,

dispersing a portion of the mixture to an examination site on a surface, the carriers ~~particles~~ of the first and second classes being distributed to random positions across the examination site,

reacting the portion of the mixture with a test substance,

acquiring at least one image of carriers ~~particles~~ at the examination site on the surface, and

using code information from the at least one image to interpret results of the experiment,

wherein each of the carriers ~~particles~~ has at least one flat viewing surface and a shape that self-orients the viewing surface to face a viewing direction.

35. (Canceled)

36. (Currently amended) The method of claim 34, wherein each carrier ~~particle~~ has at least one transparent portion.

37. (Currently amended) The method of claim 34, wherein each carrier ~~particle~~ comprises a combination of fused fibers of various colors, the colors and relative positions of the fibers indicating the code.

38. (Currently amended) The method of claim 34, wherein the coupling step includes attaching biological cells to carriers ~~particles~~ in each vessel, the code on each carrier ~~particle~~ identifying a characteristic of a cell coupled to the carrier ~~particle~~.

39. (Currently amended) The method of claim 34, wherein analytes are coupled to carriers ~~particles~~ covalently.

40. (Previously presented) The method of claim 34, wherein the reacting step is performed before the dispersing step.

41. (Currently amended) A method for conducting a multiplexed experiment, comprising:

providing a first class of carriers ~~particles~~ in a first vessel, each carrier ~~particle~~ in the first class having a first optically detectable code, and a second class of carrier ~~particles~~ in a second vessel, each particle in the second class having a second optically detectable code wherein the code exists throughout the structure of the carrier,

coupling a first type of analyte to carriers ~~particles~~ in the first vessel, and attaching a second type of analyte to carriers ~~particles~~ in the second vessel,

forming a mixture of carriers ~~particles~~ from the first and second vessels, the mixture having substantially equal numbers of carriers ~~particles~~ from each vessel,

dispersing a portion of the mixture to an examination site on a surface, the carriers ~~particles~~ of the first and second classes being distributed to random positions across the examination site,

directing an imaging device toward the examination site, the image device being configured to acquire images of carriers ~~particles~~ at the examination site,

acquiring a set of images of carriers ~~particles~~ at the examination site, each image corresponding to a different spectral band, and

operating a computer program to identify carriers ~~particles~~ of the same class by using the images to develop a mask of carriers ~~particles~~ of the same class, and detecting one or more reporting modalities with the mask.

42. (Currently amended) The method of claim 41, wherein each of the carriers ~~particles~~ has at least one flat viewing surface and a shape that self-orientes the viewing surface to face a viewing direction substantially perpendicular to the surface.

43. (Currently amended) The method of claim 41, wherein each carrier ~~particle~~ has at least one transparent portion.

44. (Previously presented) The method of claim 41, wherein each carrier comprises a combination of fused fibers of various colors, the colors and relative positions of the fibers indicating the code.

45. (Currently amended) The method of claim 41, wherein the coupling step includes attaching biological cells to carriers ~~particles~~ in each vessel, the code on each carrier ~~particle~~ identifying a characteristic of a cell coupled to the particle.

46. (Currently amended) The method of claim 41, wherein analytes are coupled to carriers ~~particles~~ covalently.

47. (Previously presented) The method of claim 41, wherein the reacting step is performed before the dispersing step.